

# ICER **UPDATE**

*INSTITUTE FOR CLINICAL AND EPIDEMIOLOGIC RESEARCH*

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## **The Quality Enhancement Research Initiative**

As medical research and treatment of high-risk diseases and conditions continue to advance, health care management of these diseases often bears the costs and effort required to implement treatment advances. The Quality Enhancement Research Initiative (QUERI) is a new, multi-million dollar mission by the Department of Veterans Affairs to interface medical research, patient care and health care policy to ensure the delivery of the highest quality health care for veterans across the nation.

The process of QUERI is to identify and implement the best practice possible (including prevention, treatment, and intervention) for ten diseases and conditions of high risk to veterans: Congestive Heart Disease, Ischemic Heart Disease, Diabetes, Mental Health, Substance Abuse, Prostate Disease/Cancer, Spinal Cord Injury, Neurological Disease, HIV/AIDS, and Cancer.

Each of these ten high-risk diseases and health conditions, or modules, will have a QUERI headquarters at various VA Hospital sites. Headquarters for the Neurological Disease module is located at the Durham VA. The Research Coordinator is Dr. Eugene Oddone, Director of the Center for Health Services Research and Development in Primary Care. Dr. John Booss in West Haven, Connecticut, is the Clinical Coordinating Director. VA sites in Denver, Colorado; Loma Linda, California; and Bedford, Massachusetts are working in collaboration with the Durham QUERI as well.

Much of the focus of the Durham headquarters for Neurological Disease will be in the area of stroke. Stroke is the third leading cause of death and the leading cause of adult disability in the United States. The Durham QUERI seeks to identify and improve upon important areas in stroke prevention and treatment for the veteran population. Research projects will be implemented along a continuum, from preventing initial strokes, improving outcomes for patients with stroke, and identifying post-stroke rehabilitation strategies that preserve function in the optimum setting for veterans who may be at risk or diagnosed with stroke. Four specific objectives are targeted for enhancement: anticoagulation services, carotid

endarterectomy, acute stroke management, and post-stroke rehabilitation.

### **Anticoagulation Services**

Research in anticoagulation clinic services (ACS) will identify gaps in the core process of anticoagulation in terms of outcomes quality and cost-effectiveness and observe barriers to access for veterans who may benefit from these services. Anticoagulation clinics offer the most optimal services for reducing the risk of stroke in patients with atrial fibrillation by closely monitoring the administration of Warfarin, an anticoagulation drug. Less than half of eligible patients receive warfarin, and of those who do receive warfarin, less than half are optimally monitored. Initially, a survey will be conducted of ACS and non-ACS VA medical centers in order to determine which existing sites fit the functional definition of an ACS. It will also determine the training of ACS managers, number of patients enrolled, whether case finding is

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### **Institute Programs:**

- Biostatistics
- Training
- Quality Enhancement Research Initiative in Stroke

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**Department of  
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employed, cost of service, and other information, as well as determine what other models of anticoagulation quality monitoring are utilized at VA sites that do not use anticoagulation clinic services. A system-wide approach to identify patients with atrial fibrillation who are eligible for anticoagulation treatments will be conducted as well. Once a survey and analysis of the factors essential for successful implementation are complete, a recommendation regarding ACS services VA-wide will be submitted.

### **Carotid Endarterectomy**

A second research area of the Stroke QUERI will be to explore different models of process and outcome for patients undergoing carotid endarterectomy (CE), a surgical stroke prevention procedure. Proven effective in preventing stroke by at least 50% in symptomatic and asymptomatic patients, the procedure is not performed on a regular basis. It appears that CE has a higher complication rate than expected, though the factors for these complication rates have not yet been determined.

To improve CE practices in the future, an association needs to be established between volume, safety and outcome of this procedure. The first step will involve analyses to determine if there is an association between surgical volume and 30-day complication rates. Complication rates will then be evaluated according to institutional volume. Supplemental analyses will involve case-mix adjustment with independent models using available pre-surgical information. More complex analyses will involve institution specific variables dealing with complexity and process of CE. Assessment of the symptom status leading to the surgery and of the degree of stenosis in the carotid arteries will be conducted system-wide to determine the appropriateness of the CE procedure. A request for proposal (RFP) will be developed to evaluate the general population rates of CE compared to actual rates of CE in veterans according to service area. And finally, an RFP will be developed to perform a formal quality improvement project seeking to improve safety of CE at each participating VA institution.

### **Acute Stroke Management**

The improvement of acute stroke management will require the development, testing, and implementation of high-quality stroke-related care applicable to a variety of VA settings. Although diverse and effective practices in acute stroke management are available resulting in the improvement of outcome for patients cared for with a systematic approach to stroke, there are few of these systems available inside or outside the VA. Also, with the limited availability of VA resources, establishing acute stroke management units in each center is fiscally and logistically impractical. Nevertheless, the provision of organized stroke care can be accomplished in other ways, such as implementing multi-disciplinary specialized services.

This can be done by identifying the "functional" definition of optimal stroke care and establishing a performance measure to assess the degree to which that goal is being achieved. A "tool box" to assist individual sites

in developing a local delivery strategy that satisfies the requirements for optimal stroke care will be developed as well. Once in place, this systematic service delivery can be evaluated based on implementation difficulties, effects on system of care, and outcome measured and adjusted for patient-level factors known to affect stroke outcome. Next, establishing what resources are available for implementing the functionally defined stroke care system will be carried out through a systematic survey to assess VA hospital resources.

### **Post-Stroke Rehabilitation**

The final Stroke QUERI research effort will seek to define the process and outcome of post-stroke rehabilitation, particularly as it applies to stroke patients discharged to rehabilitation nursing home units. The VA has many post-stroke rehabilitation centers in a variety of locations, such as nursing homes, geriatric evaluation and management units, medical, surgical, and neurological units and acute care settings. All VA centers follow post-stroke rehabilitation guidelines, but centers can vary in effectiveness of care. Existing centers do, however, provide a rich data source to allow for analysis of their effectiveness in terms of mortality, complications and readmission rates. Risk adjustment models will be developed which can be used to determine the quality of care these patients receive in the various settings. Case mix adjusted variables will be developed to predict functional recovery following stroke and to determine the effect care has on subsequent functional outcome. Valid and reliable measures of quality of life and community re-entry will be incorporated into current models of outcome evaluation to enhance program evaluation and quality improvement along with an examination of rehabilitation admission criteria and criteria for "less than acute" rehabilitation services.

## **HSR&D News**

### **MD and Post-Doctoral Fellowships**

The Center announces and welcomes our new research fellows, three MD Fellows and two Post-Doctoral Fellows: Cynthia D. Brown, MD; Preston S. Klassen, MD; Stephen J. Wilson, MD; Patrick S. Calhoun, PhD; and Catherine Forneris, PhD.

Each year the Center invites and supports healthcare professionals interested in fundamental questions about the structure, process and effects of health care services that can be used to improve the VA medical care system. Programs in two-year medical and one- and two-year pre- and post-doctoral fellowships are offered to promising investigators to develop their applied research, clinical, and/or teaching skills in health services research methods while working closely with one or more

VA faculty preceptors. Fellowships are funded through the Department of Veterans Affairs and the Agency for Health Care Policy and Research (AHCPR).

### **Cynthia D. Brown, MD**

Dr. Cynthia D. Brown began her medical fellowship with VA HSR&D as an AHCPR-funded Fellow in July 1998. Her research focus is on how chronic lung disease effects a person's quality of life and which disease management strategies maximize that quality. She is also very interested in the role exercise plays on this aspect of chronic lung disease. She has been working with her mentors Dr. Eugene Oddone and Dr. Neil MacIntyre.



*Cynthia D. Brown, MD*

Dr. Brown received her BS in Biology in 1980 and MS in Library Science in 1983 from St. John's University in Jamaica, NY. While working as a reference librarian and later as a manager in scientific information and documentation at Sterling Drug, Inc. in New York, Dr. Brown worked toward and received her MA in Biology from Montclair State University in 1989. She then went on to get her MD from State University of New York Health Science Center at Brooklyn, in 1994. She did her internship and residency at Brown University's Roger Williams Medical Center from 1994 through 1997. She became a fellow in Pulmonary and Critical Care Medicine at the Duke University Medical Center in 1997. She is completing a Masters in Health Science through Duke University's Clinical Research Training Program, expecting to receive her degree in 2000.

Determining the effects of exercise in general, and then specific exercises on health related quality of life, says Dr. Brown, can help in designing a more effective rehabilitation program. "One of the problems we see in pulmonary rehabilitation is a patient not continuing their exercise prescription after the formal program is ended." She goes on to say that, "If we determine what works best to improve everyday functioning, we may be able to improve post program compliance." At present, Dr. Brown's research concentration is in obstructive lung disease, but she plans to extend this work to include other chronic lung diseases.

Dr. Brown has co-authored one article, is lead author on one abstract and has one manuscript and one abstract in preparation. She is also a member of the American Medical Association, National Medical Association, the American College of Chest Physicians, and the American College of Physicians/American Society of Internal Medicine.

### **Preston S. Klassen, MD**

Dr. Preston S. Klassen began his medical fellowship with the VA HSR&D in July 1998. His current research projects are focused on three areas. The first is a prospective trial examining the control of blood pressure in hemodialysis patients and subsequent effects of left ventricular hypertrophy. The second is a retrospective database examination of the relationship between blood pressure and cardiovascular mortality in dialysis patients. The third is a prospective cohort study of renal transplant recipients infected with Polyomavirus, designed to follow the response of the infection to a reduction in immuno-suppression. His career goal is to obtain a position in academic nephrology, combining clinical practice with outcomes research in the hemodialysis population. He is working under the mentorship of Dr. Eugene Oddone.



*Preston S. Klassen, MD*

Dr. Klassen received a BA in Chemistry from Central College in Pella, Iowa, graduating Summa cum Laude in 1990. He developed skills in basic science research while investigating the ability of lymphokine-activated natural killer cells to purge tumor-contaminated bone marrow prior to autologous marrow transplantation. In 1994 he graduated with honors from the University of Nebraska College of Medicine. During medical school he continued to pursue his interest in basic science through the Craven Research Scholarship program, his primary focus investigating potential autoimmune mechanisms in alcoholic liver disease. He did both his internship and residency in internal medicine at Duke University Medical Center from 1994 through 1997, where he was an Assistant Chief Resident his senior year. Dr. Klassen is also a nephrology fellow at Duke University. He is also a co-author of a journal article and a published abstract.

Dr. Klassen also maintains active teaching responsibilities within Duke Medical Center. He is a clinical instructor in physical diagnosis for first year medical students and gives lectures on acid-base physiology to second year medical students during their Internal Medicine rotations.

### **Patrick S. Calhoun, PhD**

Dr. Patrick S. Calhoun began his Post-Doctoral Fellowship in Psychology with HSR&D in October, 1998 as an AHCPR-funded Fellow. His research interests focus on the impact of psycho-social factors on health and health outcomes, the psychological, physiological, and behavioral sequela of Post-Traumatic Stress Disorder



(PTSD), and the identification and promotion of effective ways of dealing with social conflict. Among other projects, he is currently investigating the efficacy of cognitive behavioral treatment of severe anger in patients with PTSD, the health utilization of veterans with PTSD, and the impact of social support on cardiovascular reactivity in Vietnam veterans with PTSD. Upon completion of his post-doctoral fellowship, Dr. Calhoun hopes to continue a clinical and research career in an academic medical center setting. During his fellowship he is being co-mentored by Dr. Jean C. Beckman and Dr. Hayden Bosworth.



*Patrick S. Calhoun, PhD*

For undergraduate school, Dr. Calhoun attended the University of North Carolina at Chapel Hill, graduating with a BA in Psychology and History in 1992. He went on to Vanderbilt University to receive training in a scientist-practitioner model and double majored in clinical and social psychology. He received an MA in 1996 and completed his Ph.D. in 1998. He completed his one-year residency at the Department of Psychology, VA Medical Center, Durham, NC, in August, 1998. Dr. Calhoun is also a member of the American Psychological Association, the North Carolina Psychological Association, and Psi Chi, National Psychological Honorary Society.

In addition to his education and teaching experience, Dr. Calhoun is co-author on two presented papers, is the lead author of three manuscripts under review and co-author of another, and is the lead author of five manuscripts in preparation.

### **Catherine Forneris, PhD**

Catherine A. Forneris, a clinical psychologist, began her Post-Doctoral Fellowship in Health Services Research in September, 1998. Her primary research interests are in the fields of trauma, violence, and Post-Traumatic Stress Disorder (PTSD). During the course of her fellowship her interests have broadened to include the mental and physical health service needs of individuals with severe and persistent mental illness and those who seek relief from psychiatric symptoms in primary care clinics. Her



*Catherine A. Forneris, PhD*

current research project is designed to validate the clinical utility of a four item brief screening instrument for PTSD that can be used in a veteran primary care cohort and to determine the prevalence of this disorder within its population. Dr. Forneris is also examining physical and mental health service utilization among veteran women with a history of trauma and victimization through a set of outpatient databases. During her fellowship Dr. Forneris is being co-mentored by Marian I. Butterfield, MD, MPH and Hayden B. Bosworth, PhD.

Dr. Forneris received a BS in chemistry in 1986 from Syracuse University. Her graduate training was conducted at the University of Albany, State University of New York where she earned two master's degrees in Biomedical Science and Psychology in 1990 and 1993, respectively. She completed her doctoral degree in Clinical Psychology in 1998. A significant part of her doctoral degree training and dissertation research were funded by two separate NIMH sponsored grants and several university-based awards.

Dr. Forneris has a considerable amount of research, clinical, and teaching experience. She has held several research assistantships, taught a variety of undergraduate level psychology courses, and worked in a broad range of inpatient and outpatient clinics and hospitals. She is currently a member of the North Carolina Psychological Foundation and the International Society for Traumatic Stress Studies. To date, she has co-authored 12 research articles and has been the lead author on several paper presentations.

Dr. Forneris plans to continue to focus her efforts on clinical research, particularly in the areas of trauma, violence, and PTSD. Dr. Forneris states, "I am interested in the sequelae of trauma and violence on the psychological and physical well-being of men and women and their use of medical and mental health services. I am also interested in the impact of these issues on public policy decision, risk, prevention, and treatment."

## **Biostatistics News**

### **Steven C. Grambow, PhD Statistician**

Steven C. Grambow, PhD, joins the Durham VA full-time as the ERIC PhD Biostatistician. Dr. Grambow received his BS in Mathematics, with an emphasis on statistics, from California State University at Chico in 1991. While at Chico he earned Phi Kappa Phi honors and received the Lloyd Cook Mathematics Award. Upon completion of his undergraduate degree he volunteered two years in the Peace Corps teaching math and physics in Ndaragwa, Kenya, where he became fluent in Swahili. He received his MS in Statistics in 1996 and his PhD in Statistics in 1998 from the University of Kentucky at Lexington. While at Kentucky, Dr. Grambow taught undergraduate

statistics courses for two years. He was a statistical consultant for one year for the College of Agriculture and a research assistant in the Department of Statistics for a year. He also worked as a statistical intern for a year at the Lexmark Corporation in Lexington while he completed his doctoral program. The title for his dissertation is "Deterministic Methods in Robust Estimation and Influence Diagnostics." Dr. Grambow is also a member of the American Statistical Association, the Phi Kappa Phi Honor Society, and the National Peace Corps Association.



*Steven C. Grambow, PhD*

Dr. Grambow's research interests focus on areas to improve statistical methodology for dealing with data that violate the assumptions necessary for least squares regression including robust regression, influence diagnostics, and statistical computing algorithms. As medical data often violates assumptions of normality and provides logistical difficulty in analysis, Dr. Grambow is interested in developing diagnostic methods which address these issues specifically in health services research.

Dr. Grambow looks forward to providing statistical assistance in the development and execution of VA epidemiological and health services research projects addressing the health care needs of our nations military veterans. He is currently involved in the creation of a grant writing template which will help facilitate the writing process by providing investigators with a series of tools developed to help clarify research hypotheses and design studies. Dr. Grambow will also be providing help in analysis and manuscript preparation.

## ERIC News

### Diabetes Mellitus Screening

Screening for diabetes mellitus in non-pregnant adults is a controversial subject. For a screening strategy to be successful, patients identified by surveillance will have to have better outcomes than if they had been diagnosed at a later, more symptomatic phase of disease. However, little is known about outcomes in patients diagnosed with diabetes by screening. Additionally, the prevalence of undiagnosed diabetes among veterans is unknown, as is the annual incidence of diabetes among veterans.

Dr. David Edelman and his research team are performing a two-phase, observational study of veterans at high risk of diabetes mellitus. In the first phase, a population-based survey followed by blood testing will

be performed to calculate the prevalence of undiagnosed diabetes and incidence of diabetes in veterans. They will also measure quality of life among veterans in order to quantitate differences between those veterans with diabetes, those without diabetes, those without diabetes but with comparable risk of diabetes, and those with undiagnosed diabetes.

The second phase of the project will be a 3-year prospective cohort study. This will involve the measure of the incidence of diabetes, the quality of life changes associated with incident diabetes, the changes in glycemic control

associated with surveillance-based diagnosis of diabetes, and the cost and utilization associated with surveillance-based diagnosis of diabetes.

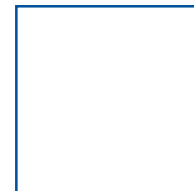
Up to the present, 4500 potential subjects have been identified. Candidates were drawn from a survey of veterans between the ages of 45 and 64 who were patients in the Durham VA Medical Center in 1997. Full enrollment began in July 1998, and by February 1999, approximately 760 patients had been enrolled. Dr. Edelman hopes that by July 1999, his target of 1276 enrollees will have been met. Preliminary data reveals that the prevalence of undiagnosed diabetes is approximately half what it would be in an otherwise similar population not necessarily receiving ongoing medical care. It has also been found that the prevalence of unrecognized diabetes is very low in patients who do not have identifiable risk factors for diabetes such as obesity, a family history of diabetes, or people of non-caucasian race.

The clinical impact of this study lies in its ability to provide information about the clinical state of patients with undiagnosed diabetes, as well as the potential (though not through the study itself) for patients with undiagnosed diabetes to obtain appropriate counseling and treatment for their diabetes. From a research perspective this study will allow further studies of appropriate treatment for early diabetes, as well as allowing us to determine whether the medical center setting is appropriate for studies of screening for diabetes (as opposed to a true community setting). Policy makers can use the results to assess the costs and benefits of a comprehensive program of screening for diabetes.



*David Edelman, MD*

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## Health Services Research Annual Meeting

The Seventeenth Annual VA HSR&D Service Meeting, “Health Services Research at the Interface,” held in Washington, DC, February 24th - 26th, was a huge success. Four hundred and eighty VA researchers, clinicians, and policymakers were present, making this the most well attended annual meeting to date. Throughout the conference, attendees were encouraged to articulate the links between scientific activities, VA policy development, and clinical services delivery. Barbara K. Rimer, PhD, Director, Division of Cancer Control and Population Sciences for the National Cancer Institute, gave the first night’s Keynote Address on the subject of cancer related health services research. The Honorable David E. Price, PhD, U.S. House of Representatives for the 4<sup>th</sup> District of North Carolina, spoke the next day on the importance of health services research for government policy making. Four plenary paper session abstracts were presented. They were: Dan R. Berlowitz, MD, MPH, on *Are We Improving the Quality of Nursing Home Care: The Case of Pressure Ulcers*; Stephan D. Fihn, MD, MPH, on *Variations in Condition-Specific Health Status Among VA General Internal Medicine Clinics*; Edwin G. Wilkins, MD, on *Patient Preferences in PSA Screening: The Impact of Shared Decision-making Videos*; and Elizabeth M. Yano, PhD, MSPH, on *Effectiveness of VA Primary Care Firm Systems: Preliminary Findings*. The first Under Secretary’s Award for Outstanding Achievement in Health Services Research was presented by Thomas L. Garthwaite, MD, to Rudolf H. Moos, PhD, Director of the Center for Health Care Evaluation in Palo Alto California. Over two hundred abstracts were submitted and one hundred and forty-six were accepted for presentation. There were seventy-six oral presentations, sixty poster presentations, and ten workshops.

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The Institute’s mission is to provide quality information on issues regarding the organization, financing, and delivery of veterans’ health care, and to build the epidemiological capacity of the Veterans Health Administration through the generation, synthesis, and dissemination of epidemiological information. The Institute also has a mission to educate health professionals through a spectrum of training grants in the techniques of health services and epidemiological research.